110

Quality Control

QC

March-20-13 2:52:33 PM D4021-9 Accept Item ID: *N900040100* Setup Start Revision ID: Item Name: Bushing *64* Start Date: 3/20/13 **Start Oty: 64.00 Cust Item ID:** Required Date: 3/26/13 Req'd Oty: 64.00 **Customer:** Reference: Run Process Plan: MLJ Date: 13-03- & Tooling: Approvals: Date: Stop Date: SPC(Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Reject Insp. **Work Center ID** Description Qty Qty Number Stamp **Run Hours** Code Draw Nbr **Revision Nbr** D4021 В 100 0.00 *100* 13/03/23 Hardinge 0.00 Memo Hardinge CNC Lathe Small TURN AS PER FOLIO FA 868 AND DWG D4021 DWG REV: 1475 B FOLIO REV: N/A ***MACHINE TO .375" MAX OD *** **DEBURR** 110 QC2- Inspect parts off machine FAI/FAIB 0.00

0.00

Memo

13/03/23

	'										DQA:	Date	•
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UP	DATE	•		
						•					QA Closed:	Date	:
Work Or	deri:	1				DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
	No.	١.,				Rework Scrap		ſ	Skid-tube Machining	Crosstube Small Fab	•	Water Jet d. Eng. Coor.	Engineering Quality
NCR	No.	! .				Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Stor	e/Packaging Supplier	Other
Root		ŧ			Descri	ption of work order update		Initial	Ac	tion	Sign &	•	
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data	<u> </u>	' '	1				1						
quip/Toolin	g						l						
Operator	\vdash	1 (
Material	-	}											
Setup	-	٠ ;	ĺ										
Other Process	\vdash												
Supplier	\vdash	: 1											
Fraining													
Jnapproved		!						. 2					
				1	1	F	AUL	T CATE	GORY				•
Lan	ding (Gear				General							
		Bending				Bend		Grain			Ovalized		Pressure/Forced
		Centre No	ot Concei	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged	\perp	4 '	on Incomplete		Part Incorred		Weld
1		Crushed/	Crimped		_	Burrs	_	4	ions incomplete/	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	<u> </u>	Cuffs			_	Contamination	_	Mainte			Part Moved		
		Heat Trea				Countersink	\vdash	Mislabe		ļ	Positioned V	_	٦
	\vdash	inspection	-	Tube	<u> </u>	Cut Too Short	\vdash	Misread			Power Loss/S	Surge	Other
	\vdash	Ripples in			<u> </u>	Drill Holes	\vdash	Offset					
		Torque W			n	Drawing	<u> </u>	-	Calibration				
	<u> </u>	Turning S			L	Finish	\vdash	1	equence				
ſ	4	Wave/Tw	ist in Tub	oe e	1	Folio	1	Outside	Dimensions				

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

March-20-13 2:52:33 PM

D4021-9 Item ID: Accept *N900040100* Setup Start **Revision ID:** Item Name: Bushing **Start Qty: 64.00** *64* Start Date: 3/20/13 **Cust Item ID:** Required Date: 3/26/13 Req'd Oty: 64.00 **Customer:** Reference: Run Process Plan: Approvals: Date: Tooling: Date: Stop Date:_____ SPC (Y/N): Date: Sequence ID/ **Operation** Set Up/ Tool ID Tool # Plan Reject Reject Accept Work Center ID Description Code Qty Stamp OAS Qty Number **Run Hours** 120 QC8- Inspect parts - second check 0.00 13.3.24 64 *120* 0.00 Memo Quality Control 130 Identify as per dwg & Stock Location: 0.00 *120* Packaging 0.00 Memo Packaging QC21- Final Inspection - Work Order Release 140 0.00 *140* 0.00 Memo Quality Control

		,									DQA:	Dat	e:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORI	MANCE / UPI	DATE	QA Closed:	 Dat	 e:	
Work Or	der:	· · · · · · · · · · · · · · · · · · ·				DISPOSITION				AGAINST D	EPARTMENT,			
Part	1	! .				Rework Scrap]	i e	Skid-tube Nachining	Crosstube Small Fab	Pro	Water Jet d. Eng. Coor.	En	gineering Quality
NCR	No.	i				Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Sto	re/Packaging Supplier		Other
Root Cause	1	Date	Step	Qty		ption of work order update or Non-conformance		nitial ief Eng		ion ription	Sign & Date	Verification	1 (QC Inspector
Ooc/Data Equip/Toolin Operator Material Setup Other Process Supplier Training	g		•											
Jnapproved	1	! !	L	<u> </u>			ALII	T CATE	SORY		1			
, Lane	ling	Gear				General General	701	. CAIL						
		Bending Centre No Cracks Crushed/o Cuffs Heat Trea Inspectio Ripples in Torque W	Crimped ot n Strip in n Bend laves in E equence	Tube Extrusio		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish		Instruct Mainte Mislabe Misread Offset Out of S	on Incomplete ions Incomplete/U enance eled d Calibration Sequence	Jnclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct ssing [Tem _l Weld	ng Stock Pulled
	1	Wave/Tw	rist in Tub	oe -	1	Folio	1	Outside	Dimensions					

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

March-20-13 2:52:37 PM

Work Order ID: 98702

98702

Parent Item:

D4021-9

D4021-9

Parent Item Name: Bushing

Start Date: 3/20/13

Required Date: 3/26/13

Start Qty: 64.00

Required Qty: 64.00

Comments:

IPP REV:A NEW ISSUE 09-11-23 JLM VERIFIED BY:DD

Rev:B as per dwg REV.A DD 10.02.22 verified by:EC

IPP IPP Rev:C as

per dwg revB DD 10.04.20 verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure		Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304R0.375		Purchased	No				f	77.6160		5.312			
M304R0 304 ROUND BAR 0.375	375								**	-	୧୨	13/03/	23
				Location		Loc (<u>Oty</u>	Loc Code					
				MAT029		77	.616						
					119346	2	.328		_		_		
					120204	5	.442		_				
					121380	3	846						

66

123294

	1	r 1									DQA:	Date	·
NCR:	Yės	/ No				WORK ORDER NON-C	CON	VFORM	MANCE / UP	DATE		_	
	l	1.									QA Closed:	Date	•
Work Or	i der:					DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
Part	i	: ,				Rework Scrap			Skid-tube Machining	Crosstube Small Fab	Pro	Water Jet	Engineering Quality
1 01	110.					Use-as-is	1		noforming	Finishing	-1	e/Packaging	Other
NCR	NO					Work Order Update	1		Large Fab	Composite	1 1100/3101	Supplier	- Ville
IVCI	110.					Work Order opdate	J		raige rab	composite	J	3upplie/	
Root	Ι				Descri	ption of work order update		nitial	Act	tion	Sign &		
Cause	1	Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
oc/Data					·								
quip/Toolin	g												
perator													
/laterial						•							
etup	L]							:				
Other] ,											
rocess]]						•				
upplier													
raining	L] ',											
Inapproved	<u> </u>											-	
	i	ι,.				F	AUL	T CATE	GORY				
Land	ding	Gear				General	_			_	_	-	_
Ì		Bending				Bend		Grain		<u> </u>	Ovalized	<u> </u>	Pressure/Forced
Ì		Centre No	ot Concer	ntric to	o/s	BOM/Route		Hardwa			Over/Under	—	Temperature/Cure
	\perp	Cracks				Broken/Damaged			on Incomplete		Part Incorred	⊢	Weld
		Crushed/	Crimped			Burrs	$ldsymbol{ldsymbol{ldsymbol{eta}}}$	Instruct	ions Incomplete/	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	L	Cuffs				Contamination	L	Mainte			Part Moved		
	L	Heat Trea	at			Countersink		Mislabe	led	<u> </u>	Positioned V		_
	L	Inspection	n Strip in	Tube		Cut Too Short		Misread	Í	<u></u>	Power Loss/S	Surge	Other
		Ripples in				Drill Holes		Offset					
	L	Torque W	/aves in E	xtrusio	n	Drawing	_	Out of 0	Calibration				
		Turning S	equence			Finish		Out of S	Sequence				
		Wave/Tw	ist in Tul	ре		Folio		Outside	Dimensions				

H:/FORM\$/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	98702
Description: Bushing	Part Number:	D4021-9
Inspection Dwg: D4021 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.191	+0.005/-0.001	.191	V		Pin G	
0.38	+/-0.030	, 370	7		VERN	140-01
0.75	+/-0.030	.757	/		• •	33
			`			
						n uncare
				12/	Preliminary A	

Measured by: PO	Audited by:	(04)	Preliminary Approval:	
Date: (3/03/23	Date:	3.3.24	Date:	

Rev	Date	Change	Revised by	Δ.	1	Approved
Α	10.06.08	New Issue	KJ ∳	()	1	<u> </u>
 			7	7 T		

NCR:	Yes	-/-	No
IACIV.	163	,	110

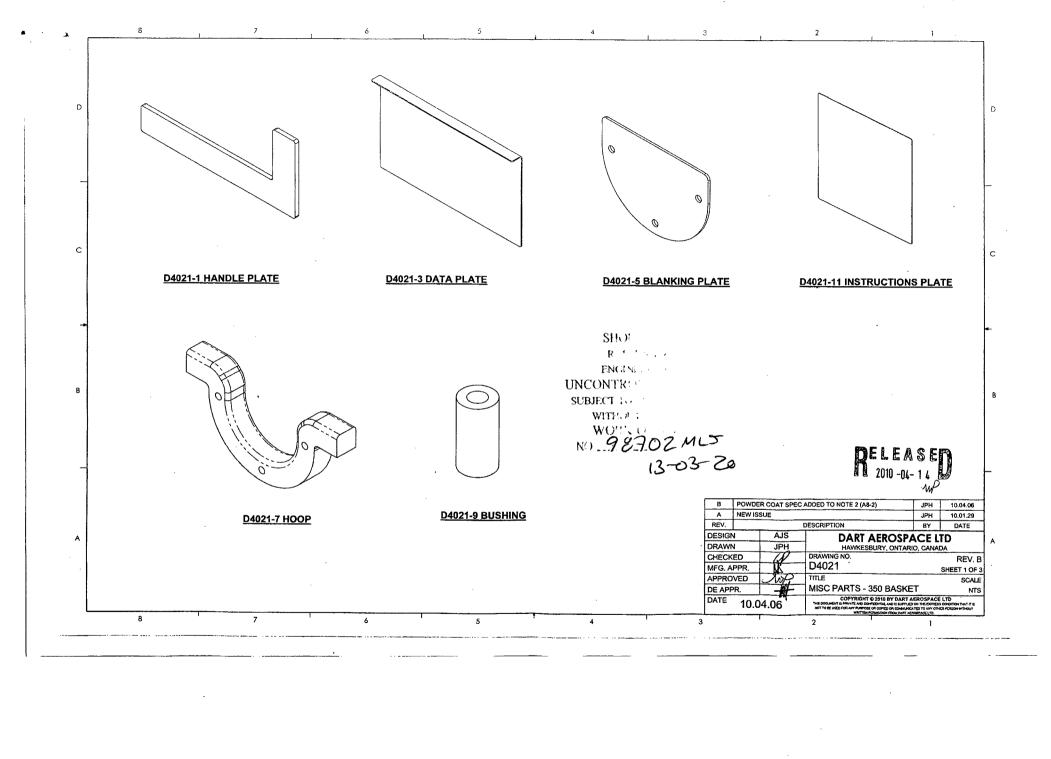
											DQA:	Date	:	
NCR:	Yes	/ No				WORK ORDER NON-O	CON	NFORM	MANCE / UPI	DATE	QA Closed:	Date	.	
						DISPOSITION		_		AGAINST DI			!	
Work Orde Part N	، ۱۰۰		· · · · · · · · · · · · · · · · · · ·			Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	- i	Water Jet d. Eng. Coor. re/Packaging Supplier	⊣ -	eering Quality Other
				,									!	
Root Cause		Date	Step	Qty	1	ption of work order update or Non-conformance		nitial ief Eng		ion ription	Sign & Date	Verification	QC	Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved					·								! ! !	
					-	F	AUL	T CATE	GORY					
Landi		Bending				General Bend		Grain			Ovalized			e/Forced
	\vdash	Centre No Cracks		ntric to	o/s	BOM/Route Broken/Damaged		,	on incomplete		Over/Under Part Incorred	et 📜	Weld	ature/Cure
		Crushed/ Cuffs				Burrs Contamination		Mainte		Jnclear	Part Lost/Mi	_	Wrong :	Stock Pulled
		Heat Trea	n Strip in	Tube		Countersink Cut Too Short		Mislabe Misread		E	Positioned V Power Loss/		Other	
	\vdash	Ripples in		* .	_	Drill Holes	\vdash	Offset	Calibratia -			····		
	\vdash	Torque W Turning S			n -	Drawing Finish	\vdash		Calibration Sequence					

Outside Dimensions

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

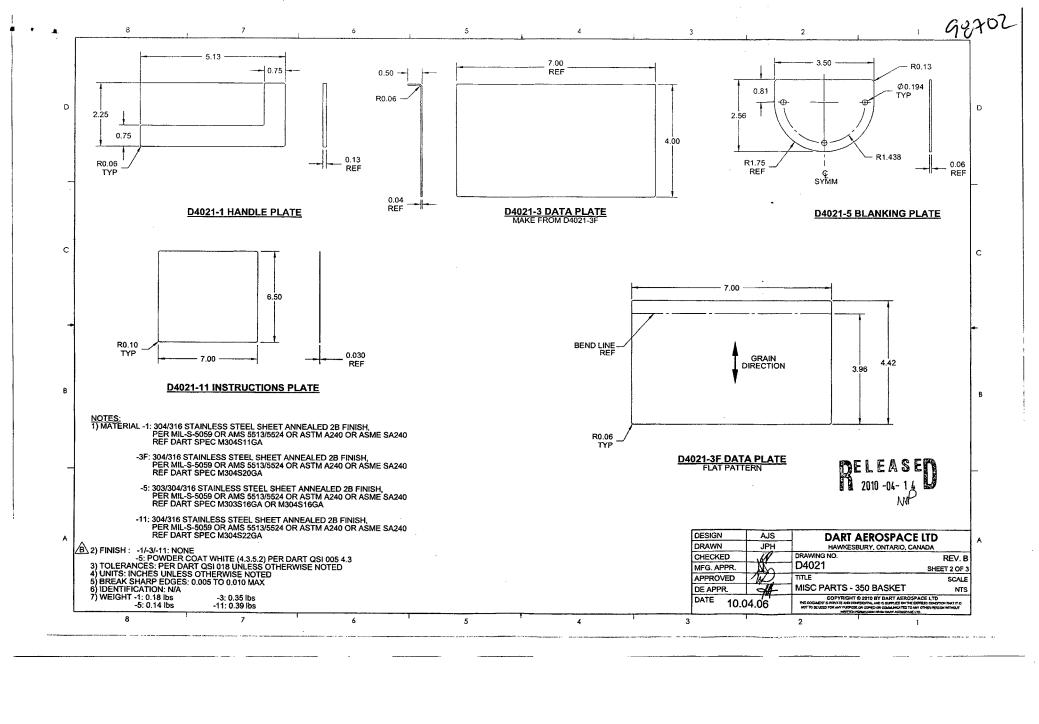
Wave/Twist in Tube

Folio



											DQA:	Dat	te:		
NCR:	Yes	s / No				WORK ORDER NON-O	CONF	ORN	MANCE / UPDATE		QA Closed:	Dat	te:		
Work Or	der:					DISPOSITION			AGAINST	r DE	PARTMENT	/PROCESS			
Part	:	-				Rework Scrap		ſ	Skid-tube Crosstube Wachining Small Fab	Ĺ	4	Water Jet d. Eng. Coor.		Engineering Quality	
NCR	No.	· <u>· </u>				Use-as-is Work Order Update	}		noforming Finishing Large Fab Composite	_	Rec/Stor	re/Packaging Supplier		Other	
Root	•				Descri	ption of work order update	Init	ial	Action		Sign &				
Cause	:	Date	Step	Qty	(or Non-conformance	Chief	Eng	Description		Date	Verification		QC Inspector	
Doc/Data		1									•				
quip/Toolin	g					•									
Operator															
Material	-														
Setup	i.	-											İ		
Other	<u> </u>	'										1			
Process	Ŀ	-													
Supplier	\vdash						İ								
Training .	\vdash	- ' .													
Jnapproved	<u> </u>	1	<u> </u>				AULT (ATE	CORV	-					•
Land	lina	Gear				General	AULI	AIE	JONY						
Land	iing ·	Bending				Bend	Псг	ain			Ovalized	ī	\neg	Pressure/Forced	
	\vdash	Centre No	nt Concer	ntric to (_{2/5}	BOM/Route		rdwa	re	-	Over/Under	tolerance	—	Temperature/Cure	
	\vdash	Cracks	or concer	Title to t	" -	Broken/Damaged			on Incomplete		Part Incorred	j.	$\overline{}$	Weld	
	-	Crushed/0	Crimped			Burrs	\vdash	-	ions Incomplete/Unclear	-	Part Lost/Mi		_	Wrong Stock Pulled	
	\vdash	Cuffs	o, iii, peu			Contamination	\vdash		nance		Part Moved			0	
8		Heat Trea	t		<u> </u>	Countersink	Мі	slabe	led		Positioned V	Vrong			
	F	Inspection	n Strip in	Tube		Cut Too Short	М	isread	I		Power Loss/	- r		Other	
		Ripples in	-			Drill Holes	Tof	fset			•	-			
		Torque W		xtrusio	n	Drawing		it of C	Calibration						
		Turning So				Finish	Or	ıt of S	Sequence						
		Wave/Tw	ist in Tub	oe .		Folio	Пол	ıtside	Dimensions						

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



DQA: Date: **WORK ORDER NON-CONFORMANCE / UPDATE** NCR: Yes / No QA Closed: Date: **AGAINST DEPARTMENT/PROCESS** DISPOSITION Work Order: Skid-tube Water Jet Engineering Rework Crosstube Scrap Machining Small Fab Prod. Eng. Coor. Quality Thermoforming Finishing Rec/Store/Packaging Use-as-is Other Supplier Work Order Update Large Fab NCR No. Composite Description of work order update Initial Action Sign & Root Description Cause Date Step Qty or Non-conformance Chief Eng Date Verification QC Inspector Doc/Data Equip/Tooling Operator Material Setup Other Process 1 : Supplier **Training** Unapproved **FAULT CATEGORY** Landing Gear General Pressure/Forced Ovalized Bending Bend Grain Centre Not Concentric to O/S BOM/Route Temperature/Cure Hardware Over/Under tolerance Weld Cracks Broken/Damaged Inspection Incomplete Part Incorrect Wrong Stock Pulled Crushed/Crimped Burrs Instructions Incomplete/Unclear Part Lost/Missing Maintenance Part Moved Cuffs Contamination Mislabeled **Positioned Wrong** Heat Treat Countersink Misread Power Loss/Surge Other Inspection Strip in Tube Cut Too Short Ripples in Bend Drill Holes Offset

Out of Calibration

Out of Sequence

Outside Dimensions

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish Folio

D

C

5.00 -R0.50 4 PL R0.10 2 PL 0.63+0.00 45° 2 PL 0.813 R1.125 REF 2.56 REF Ø0.194 TYP R1.438 - R1.75 0.63+0.00 2.500

Ø0.191 — - Ø0.38 0.75

D4021-9 BUSHING

MP

DESIGN	AJS	DART AEROSPACE	IIID				
DRAWN	JPH	HAWKESBURY, ONTARIO, CA					
CHECKED	W	DRAWING NO.	REV. B				
MFG. APPR.	$\square M$	D4021	SHEET 3 OF 3				
APPROVED	INP.	TITLE	SCALE				
DE APPR.	4	MISC PARTS - 350 BASKET	NTS				
DATE 10.0	04.06	COPYRIGHT @ 2010 BY DART AEROSPACE LTD THE DOCUMENT OF PRIVATE AND COMPETENTIAL WE'D SUPPLIED ON THE EXPRESS COMMON THAT MOT TO BE USED FOR ANY PURPOSE OF COMPETEN OR COMMON TO TO ANY OTHER PERSON RECOMMENSATION TO MAY OTHER PERSON RECOMMENSATION FOR THE P					

NOTES: 1) MATERIAL-7: 304/316 STAINLESS STEEL BAR, PER ASTM A276 REF DART SPEC M304B

-9: 304/316 STAINLESS STEEL ROUND BAR, PER ASTM A276 REF DART SPEC M304R

2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: N/A
7) WEIGHT -7: 0.80 lbs
-9: 0.02 lbs

D

С

В

D4021-7 HOOP

	į										DQA:	Da	ιe:		_
NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE															
	1										QA Closed:	Da	te:		_
Nork Or	405					DISPOSITION		AGAINST DEPARTMENT/PROCESS							
WOIK OI	uer :	•				Rework	ן ו		Skid-tube	Crosstube	7	Water Jet		Engineering	
Part	No).				Scrap	1	1	Machining	Small Fab	Pro	d. Eng. Coor.	H '	Quality	
						Use-as-is	7		noforming	Finishing		e/Packaging		Other	
NCR	NCR No.					Work Order Update	Work Order Update			Large Fab Composite			П		
	Į														
Root	l					otion of work order update		Initial Action			Sign &				
Cause	1	Date Step Qty o			(r Non-conformance Ch		ief Eng Description		ription	Date	Verification	n	QC Inspector	_
oc/Data	1	_													
quip/Toolin	g	_													
perator	-	-													
laterial	-	-													
etup ther	1	-													
rocess	H	┥. !													
upplier	+	-													
raining	Ė	- .													
napproved	1		•									:			
	FAULT CATEGORY														
Lan	ling	Gear		•		General		_							
~	1	Bending				Bend		Grain			Ovalized			essure/Forced	
:		Centre Not Concentric to O/S				BOM/Route			Hardware		Over/Under	tolerance	${f oxed{H}}$	mperature/Cure	
1	L	Cracks				Broken/Damaged	_	Inspection Incomplete			Part Incorred		⊢	eld	
	1	Crushed/Crimped				Burrs		Instructions Incomplete/Unclear			Part Lost/Mi	ssing	∐w	rong Stock Pulled	
	Ŀ	Cuffs				Contamination	\perp	Maintenance			Part Moved				
	1	Heat Treat				Countersink	\vdash	Mislabeled			Positioned Wrong				
	\perp	Inspection Strip in Tube				Cut Too Short	_	Misread			Power Loss/	Surge	Ot	her	_
	L	Ripples in Bend				Drill Holes	<u> </u>	Offset							_
	1	Torque Waves in Extrusion				Drawing	<u> </u>	4	Calibration						_
	Turning Sequence					Finish		Out of S	equence						_
		Wave/Tw	ist in Tub	oe -		Folio		Outside Dimensions							